

growth factor having an activity on osteoarticular, dental and/or maxillofacial tissues, and the method for preparing same. The invention also concerns the uses of said biomaterial for preparing a repair or filling material, such as an implant, for osteoarticular, dental or maxillofacial applications and for preparing an orthopaedic, dental or maxillofacial prosthesis, and the prosthesis coated with said biologically active material.

### In the Claims

Please amend the claims as follows:

1. (currently amended) A solid biomaterial, characterized in that it

comprises:

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(1) at least one solid support material consisting of at least one crosslinked insolubilized dextran derivative of general formula  $DMC_aB_bSu_cS_d$  in which:

D represents a polysaccharide chain consisting of successions of glucoside units,

MC represents methyl carboxylate groups,

B represents carboxymethylbenzylamide groups,

Su represents sulfate groups),

S represents sulfonate groups,

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a, b, c and d represent the degree of substitution (ds), expressed relative to the number of free hydroxyl functional groups in a glucoside unit of the dextran, respectively in MC, B, Su and S groups; a being  $\geq 0.3$ , b being equal to 0 or  $\geq 0.2$ , c being equal to 0 or  $\geq 0.1$  and d being equal to 0 or  $\leq 0.15$ , provided that when b is equal to 0, c is not equal to 0, and

(2) at least one growth factor exhibiting activity on the osteoarticular tissues, the dental tissues and/or the maxillofacial tissues.

2. (previously amended) The biomaterial as claimed in claim 1, characterized in that said insolubilized dextran derivative is such that d is equal to 0.

3. (currently amended) The biomaterial as claimed in claim 1, characterized in that said growth factor is selected from the group consisting of Epidermic Growth Factors (EGFs), Insulin-like Growth Factors (IGFs), Fibroblast Growth Factors (FGFs), Transforming Growth Factors (TGF- $\beta$ s), Platelet-Derived Growth Factors (PDGFs) and Bone Morphogenic Proteins (BMPs).

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4. (previously amended) The biomaterial as claimed in claim 1, characterized in that said growth factor has an osteoinductive activity and is a BMP.

5. (previously amended) The biomaterial as claimed in claim 1, characterized in that it comprises insolubilized dextran derivatives and/or several growth factors involved in the bone reconstruction process.

6. (previously amended) The biomaterial as claimed in claim 1, characterized in that it is insolubilized by crosslinking with the aid of a crosslinking agent.

7. (original) The biomaterial as claimed in claim 6, characterized in that said crosslinking agent is selected from the group consisting of sodium trimetaphosphate, epichlorohydrin, divinyl sulfone, gluteraldehyde and bisepoxiranes.

8. (previously amended) The biomaterial as claimed in claim 1, characterized in that it exists in the form of a hydrogel.

9. (previously amended) The biomaterial as claimed in claim 1, characterized in that it exists in the form of a freeze-dried powder.

10. (previously amended) The biomaterial as claimed in claim 9, characterized in that said freeze-dried powder is obtained from biomaterial existing in the form of a hydrogel.

11. (previously amended) The biomaterial as claimed in claim 1, characterized in that it comprises, in addition, a tissue filling material..

12. (original) The biomaterial as claimed in claim 11, characterized in that it coats particles of an inorganic or polymeric insoluble support, said particles having a diameter greater than 100  $\mu\text{m}$ .

13. (currently amended) The biomaterial as claimed in claim 11, characterized in that said tissue filling material is selected from the group consisting of collagen, gelatin, biological adhesive, polymers of polylactic or polyglycolic acids, and copolymers of polyethylene glycol with polylactide-co-glycolide.

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14. (previously amended) The biomaterial as claimed in claim 11, characterized in that said tissue filling material is an osteoconductive material selected from the group consisting of coral, hydroxyapatite, a mixture of collagen and hydroxyapatite, tricalcium phosphate, calcium sulfate, and calcium carbonate.

15. (previously amended) A process for preparing the solid biomaterial as claimed in claim 1, characterized in that the process comprises the following steps:

crosslinking of at least one dextran derivative of general formula  $\text{DMC}_a\text{B}_b\text{Su}_c\text{S}_d$  as defined in claim 1,

adsorption, in the insolubilized dextran derivative obtained above, of at least one growth factor as defined in claim 3,

production of a solid biomaterial according to claim 1 in the form of a hydrogel,

optionally, the freeze-drying of said hydrogel in order to obtain said biomaterial in the form of a powder.

16. (previously amended) The process as claimed in claim 15, characterized in that said crosslinking of at least one dextran derivative of general formula  $\text{DMC}_a\text{B}_b\text{Su}_c\text{S}_d$  is carried out with the aid of a crosslinking agent selected from

the group consisting of sodium trimetaphosphate, epichlorohydrin, divinyl sulfone, gluteraldehyde and bisepoxiranes.

17. (previously amended) The process as claimed in claim 15, characterized in that the crosslinking of at least one dextran derivative of general formula  $DMC_aB_bSu_cS_d$  is carried out in the presence of a tissue filling material.

18. (currently amended) The process as claimed in claim 17, characterized in that said tissue filling material is selected from the group consisting of collagen, gelatin, biological adhesive, polymers of polylactic or polyglycolic acids, copolymers of polyethylene glycol with polylactide-co-glycolide, and an osteoconductive material selected from the group consisting of coral, hydroxyapatite, a mixture of collagen and hydroxyapatite, tricalcium phosphate, calcium sulfate, and calcium carbonate.

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19. (previously amended) A process for preparing the biomaterial as claimed in claim 12, characterized in that it comprises the following steps:

bringing the dextran derivative into contact with particles of an inorganic or polymeric insoluble support, as defined in claim 12, so as to obtain a composite, crosslinking of the composite obtained above with a crosslinking agent, adsorption, in the insolubilized composite obtained above, of at least one of said growth factors.

20. (currently amended) A solid biomaterial according to claim 1, wherein said solid biomaterial consists in a repair or filling material for osteoarticular, dental or maxillofacial applications.

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21. (currently amended) A solid biomaterial according to claim 1, wherein said solid biomaterial consists in an osteoarticular, dental or maxillofacial implants.

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